

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Lifting mechanism with a hydraulic control and adjustment system ~~[[and]]~~ for operating a working tool in a mobile machine ~~[[with]]~~ said system including at least a first and second lifting cylinder, in which cylinder pistons each having piston rods are respectively displaceable~~[[, the]]~~ for defining a position or direction of movement ~~[[of]]~~ in which ~~[[in]]~~ the lifting cylinders fix ~~[[the]]~~ a lifting height or ~~[[the]]~~ a vertical direction of movement of the working tool relative to a vehicle body of the mobile machine, wherein each of the cylinder pistons divides ~~[[the]]~~ a therewith associated lifting cylinder into respectively two adjusting pressure chambers ~~in each case~~ and with a first hydraulic pump~~[[,]]~~ that is adjustable in respect of ~~[[the]]~~ a discharge volume, ~~[[the]]~~ a first connection of ~~which is~~ said hydraulic pump being connected depending on the vertical direction of movement of the working tool to one of the adjusting pressure chambers of the first lifting cylinder and to one of the adjusting pressure chambers of the second lifting cylinder, and the second connection of ~~which is~~ said hydraulic pump being connected in a closed circuit to the other said adjusting pressure chamber of the first lifting cylinder and the other adjusting pressure chamber of the second lifting cylinder, wherein ~~a piston side~~ the adjusting pressure chamber of the first lifting cylinder at the piston side thereof is connected to ~~a piston rod side~~ the adjusting pressure chamber of the second lifting cylinder at the piston rod side thereof via a first hydraulic line and ~~a piston rod side~~ the adjusting pressure chamber of the first lifting cylinder at the piston rod side thereof is connected to ~~a piston side~~ the

adjusting pressure chamber of the second lifting cylinder at the piston side thereof via a second hydraulic line, and wherein the first lifting cylinder and the adjusting piston of the second lifting cylinder are connected to a boom connecting the working tool to the vehicle body of the mobile machine, and wherein the second lifting cylinder and the adjusting piston of the first lifting cylinder are connected to the body of the mobile machine.

2. (Currently Amended) Lifting mechanism according to claim 1, wherein ~~in each case a~~ each respective adjusting pressure chamber on the piston rod side thereof borders on the therewith associated cylinder piston with a pressurisation face (A1) which is smaller than the pressurisation face (A2) with which ~~the~~ each respective other ~~second~~ said adjusting pressure chamber ~~in each case borders on the piston side of~~ the corresponding cylinder piston and in that each said connection of the hydraulic pump is connected to a ~~first said first-~~ mentioned adjusting pressure chamber with a smaller pressurisation face (A1) and ~~to said~~ to said ~~second-mentioned~~ adjusting pressure chamber with a larger pressurisation face (A2).

3. (Cancelled).

4. (Currently Amended) Tilting mechanism with a hydraulic control and adjustment system ~~and with~~ for a loading shovel serving as a working tool in a mobile machine, ~~with~~ said system including at least a first and second shovelling cylinder~~[,]~~ in which cylinder pistons having piston rods are respectively displaceable~~[, the]~~ for defining a position or direction of movement ~~of~~ in which ~~in~~ the shovelling cylinders fix ~~the~~ a tilting angle or ~~the~~ a tilting direction of the loading shovel relative to a vehicle body, wherein each of

the cylinder pistons divides ~~[[the]]~~ a therewith associated shovelling cylinder into respectively two adjusting pressure chambers, ~~in each case, and with a second~~ a hydraulic pump~~[[,]]~~ that is adjustable in respect of ~~[[the]]~~ a discharge volume thereof, ~~[[the]]~~ said hydraulic pump having a first connection ~~[[of]]~~ which is connected, depending ~~[[on]]~~ upon the tilting direction of the loading shovel, to a first one of the adjusting pressure chambers of the first shovelling cylinder and to a first one of the adjusting ~~pressures~~ pressure chambers of the second shovelling cylinder, and ~~[[the]]~~ a second connection of the hydraulic pump which is connected in a closed circuit to the other said adjusting pressure chamber of the first shovelling cylinder and the other adjusting pressure chamber of the second shovelling cylinder, wherein the ~~piston-side~~ adjusting pressure chamber at the piston side of the first shovelling cylinder is connected to the ~~piston-rod-side~~ adjusting pressure chamber at the piston side of the second shovelling cylinder via a first hydraulic line ~~[[and]]~~ wherein the ~~piston-rod-side~~ adjusting pressure chamber at the piston rod side of the first shovelling cylinder is connected to the ~~piston-side~~ adjusting pressure chamber at the piston side of the second shovelling cylinder via a second hydraulic line, and wherein the first shovelling cylinder and the ~~adjusting~~ piston of the second shovelling cylinder are connected to the loading shovel and the second shovelling cylinder and the ~~adjusting~~ piston of the first shovelling cylinder are connected to the vehicle body of the mobile machine.

5. (Currently Amended) Tilting mechanism according to claim 4, wherein ~~in each case a~~ each respective said first adjusting pressure chamber borders on ~~[[the]]~~ a therewith associated cylinder piston with a pressurisation face (A1) which is smaller than the pressurisation face (A2) with which ~~the other~~ each respective said second adjusting pressure chamber ~~in each~~

ease borders on ~~[[the]]~~ a corresponding said cylinder piston and ~~in that~~ wherein each connection of the hydraulic pump is connected to a respective said first adjusting pressure chamber with a smaller pressurisation face (A1) and with a respective said second adjusting pressure chamber with a larger pressurisation face (A2).

6. (Currently Amended) Tilting mechanism according to claim 4~~[[.]]~~, wherein the two loading shovel side adjusting pressure chambers of the first and second shovelling cylinders are connected via a first hydraulic line and the two ~~vehicle body side~~ adjusting pressure chambers of the vehicle body side of the first and second shovelling cylinders are connected via a second hydraulic line.

7. (Currently Amended) Lifting mechanism according to claim 1, wherein ~~[[the]]~~ a discharge direction of the first hydraulic pump operating in two-quadrant operation fixes ~~[[the]]~~ a vertical direction of movement of the working tool or the discharge direction of ~~[[the]]~~ a second hydraulic pump, ~~likewise~~ similarly operating in two-quadrant operation, fixes ~~[[the]]~~ a tilting direction of the loading shovel.

8. (Currently Amended) Lifting mechanism according to claim ~~[[1]]~~ 7, wherein ~~[[the]]~~ a discharge volume discharged at the first and second connections of the first hydraulic pump fixes the lifting height of the working tool or ~~[[the]]~~ a discharge volume discharged at the first and second connection of the second hydraulic pump fixes ~~[[the]]~~ a tilting angle of the loading shovel.

9. (Currently Amended) Lifting mechanism according to claim 8, wherein ~~[[the]]~~ an adjustment of the discharging device of the second hydraulic pump and the discharge volume discharged at the first and second connections of the second hydraulic pump is ~~done~~ as a function of a deflection set on a steering instrument constructed in the manner of a joystick in a first deflection dimension and the setting of ~~[[the]]~~ a direction of rotation of the first hydraulic pump and the ~~adjusting pressure built up~~ discharge volume at the first and second connections of the first hydraulic pump ~~is done~~ as a function of a deflection set on the steering instrument ~~constructed in the manner of a joystick~~ in a second deflection dimension.

10. (Previously Presented) Lifting mechanism according to claim 9, wherein a first adjusting valve is actuated as a function of the deflection of the steering instrument in the first deflection dimension and a second adjusting valve is actuated as a function of the deflection of the steering instrument in the second deflection dimension.

11. (Currently Amended) Lifting mechanism according to claim 10, wherein the deflection of the first adjusting valve is ~~[[done]]~~ implemented by electric adjusting magnets on control connections of the first adjusting valve, wherein one said control connection receives a first electric signal~~[[,]]~~ corresponding to the deflection of the steering instrument in the direction of the first deflection dimension~~[[,]]~~ corresponding to the tilting inwards movement, and the other said control connection receives a second electric signal~~[[,]]~~ corresponding to the deflection of the steering instrument in the direction of the first deflection dimension~~[[,]]~~ corresponding to the tilting outwards movement, from a transformer of the steering instrument and in that the deflection of the second adjusting valve is ~~[[done]]~~

implemented by electric adjusting magnets at control connections of the second adjusting valve, wherein one said control connection receives a third electric signal[,.] corresponding to the deflection of the steering instrument in the direction of the second deflection dimension[,.] corresponding to the lifting movement, and the other control connection receives a fourth electric signal[,.] corresponding to the deflection of the steering instrument in the direction of the second deflection dimension[,.] corresponding to ~~[[the]]~~ a lowering movement, from a transformer of the steering instrument.

12. (Currently Amended) Lifting mechanism according to claim 10, wherein the deflection of the first adjusting valve is ~~[[done]]~~ implemented by adjusting pressures generated by a pilot control device from the deflection of the steering instrument in ~~[[the]]~~ a first deflection dimension and supplied to control chambers located at the two control connections of the first adjusting valve, and the deflection of the second adjusting valve is ~~[[done]]~~ implemented by adjusting pressures generated by the pilot control device from the deflection of the steering instrument in the second deflection dimension and supplied to control chambers located at the two control connections of the second adjusting valve.

13. (Currently Amended) Lifting mechanism according to claim 12, wherein via a first pair of pressure reducing valves consisting of two pressure reducing valves, the inputs of which are each respectively connected ~~in each case~~ to a high pressure side connection of a first feed pump, and a hydraulic tank which generates adjusting pressures corresponding to the deflection of the steering instrument in the two directions of the first deflection dimension, wherein the pilot control device generates corresponding adjusting pressures for actuating the

first adjusting valve and via a second pair of pressure reducing valves, consisting of two pressure reducing valves, ~~[[the]]~~ having each inputs ~~[[of]]~~ which are connected ~~in each case~~ to respectively a high pressure side connection of a first feed pump, and a first hydraulic tank which generates adjusting pressures corresponding to the deflection of the steering instrument in the two directions of the second deflection dimension for the second adjusting valve.

14. (Currently Amended) Lifting mechanism according to claim 10, wherein the first and second adjusting valve ~~[[is in]]~~ are each ~~[[case]]~~ a 4/3 port directional control valve, wherein the first input connection of the first adjusting valve is connected to the high pressure side connection of ~~[[the]]~~ a first feed pump, the first input connection of the second adjusting valve is connected to a high pressure side connection of a second feed pump, the second input connection of the first and second adjusting valves is connected ~~[[in]]~~ each ~~[[case]]~~ respectively to a hydraulic tank, the first output connection of the first adjusting valve is connected to a first adjusting pressure chamber of a first adjusting device, the first output connection of the second adjusting valve is connected to a first adjusting pressure chamber of a second adjusting device, the second output connection of the first adjusting valve is connected to a second adjusting pressure chamber of ~~[[a]]~~ the first adjusting device and the second ~~out-put~~ output connection of the second adjusting valve is connected to a second adjusting pressure chamber of ~~[[a]]~~ the second adjusting device.

15. (Currently Amended) Lifting mechanism according to claim 14, wherein adjustment of the second hydraulic pump in respect of the ~~discharge~~ direction of rotation and the discharge volume discharged at the first and second connection is ~~[[done]]~~ implemented by

the first adjusting device and adjustment of the first hydraulic pump in respect of the discharge direction and the discharge volume discharged at the first and second connections by the second adjusting device.

16. (Currently Amended) Lifting mechanism according to claim ~~[[13]]~~ 14, wherein the second hydraulic pump and ~~[[the]]~~ a first feed pump or the first hydraulic pump and ~~[[the]]~~ a second feed pump are driven by a common shaft in each case of selectively a common ~~or in~~ each case ~~separate machine, in particular by a diesel aggregate~~ or separate machines.

17. (Currently Amended) Lifting mechanism according to claim 13, wherein a low pressure side connection of ~~[[the]]~~ a first feed pump is connected via a filter to a hydraulic tank, a low pressure side connection of ~~[[the]]~~ a second feed pump via a filter to a hydraulic tank, the high pressure side connection of the first feed pump via a check valve in each case to a first hydraulic load line attached to a first connection of the second hydraulic pump and to a second hydraulic load line attached to a second connection of the second hydraulic pump and the high pressure side connection of the second feed pump via a check valve ~~in each case~~ to respectively a third hydraulic load line attached to a first connection of the first hydraulic pump and to a fourth hydraulic load line attached to a second connection of the first hydraulic pump.

18. (Currently Amended) Lifting mechanism according to claim 17, wherein a check valve with an opener is provided in respectively each of the first and third hydraulic load lines ~~in~~ each ~~[[case]]~~.

19. (Currently Amended) Lifting mechanism according to claim 18, wherein after transformation into a corresponding pressure, [[the]] a second electric adjusting signal actuates an opener of the check valve integrated in the first hydraulic load line [(13)] and, after transformation into a corresponding pressure, [[the]] a fourth electric adjusting signal actuates an opener of the check valve integrated in the third hydraulic load line.

20. (Currently Amended) Lifting mechanism according to claim 17, wherein [[the]] a second adjusting pressure generated by the pilot control device actuates an opener of the check valve integrated in the first hydraulic load line and [[the]] a fourth adjusting pressure generated by the pilot control device actuates an opener of the check valve integrated in the third hydraulic load line.

21. (Currently Amended) Lifting mechanism according to claim 17, wherein located between the third and fourth hydraulic load lines is a 2/2 port directional control valve which opens in the operating state “floating position” of [[the]] a boom by applying an electric signal to an electric adjusting magnet located at the control input of the 2/2 port directional control valve, or alternately, by selectively applying an adjusting pressure in a control chamber located at the control input of the 2/2 port directional control valve.

22. (Previously Presented) Lifting mechanism according to claim 17, wherein the third hydraulic load line is connected via a hydraulic line to a hydraulic control arrangement to damp pitching oscillations of the working tool while the mobile machine is travelling.

23. (Currently Amended) Lifting mechanism according to claim 22, wherein an electric signal corresponding to the speed of the mobile machine is ~~conducted~~ transmitted from a tachogenerator of the mobile machine to ~~[[the]]~~ an input of the hydraulic control arrangement to damp pitching oscillations of the working tool while the mobile machine is travelling.

24. (Currently Amended) Tilting mechanism according to claim 4, wherein the discharge direction of the first hydraulic pump operating in two-quadrant operation fixes ~~[[the]]~~ a vertical direction of movement of the working tool or ~~[[the]]~~ a discharge direction of the second hydraulic pump, likewise operating in two-quadrant operation, fixes ~~[[the]]~~ a tilting direction of the loading shovel.

25. (Currently Amended) Tilting mechanism according to claim 4, wherein the discharge volume discharged at the first and second connections of the first hydraulic pump fixes ~~[[the]]~~ a lifting height of the working tool, or ~~[[the]]~~ a discharge volume discharged at the first and second connection of the ~~second~~ hydraulic pump fixes the tilting angle of the loading shovel.

26. (Currently Amended) Tilting mechanism according to claim 25, wherein the adjustment of the discharging device of ~~[[the]]~~ a second hydraulic pump and the discharge volume discharged at the first and second connections of the ~~second~~ hydraulic pump is ~~[[done]]~~ implemented as a function of a deflection set on a steering instrument constructed ~~in~~ the manner ~~[[of]]~~ as a joystick in a first deflection dimension and the setting of ~~[[the]]~~ a direction of rotation of the first hydraulic pump and the adjusting pressure built up at the first

and second connections of the first hydraulic pump is ~~[[dome]]~~ implemented as a function of a deflection set on the steering instrument ~~constructed in the manner of a joystick~~ in a second deflection dimension.

27. (Previously Presented) Tilting mechanism according to claim 26, wherein a first adjusting valve is actuated as a function of the deflection of the steering instrument in the first deflection dimension and a second adjusting valve is actuated as a function of the deflection of the steering instrument in the second deflection dimension.

28. (Currently Amended) Tilting mechanism according to claim 27, wherein the deflection of the first adjusting valve is ~~[[done]]~~ implemented by electric adjusting magnets on control connections of the first adjusting valve, wherein one control connection receives a first electric signal~~[[,]]~~ corresponding to the deflection of the steering instrument in the direction of the first deflection dimension, corresponding to the tilting inwards movement, and the other control connection receives a second electric signal, corresponding to ~~[[the]]~~ a deflection of the steering instrument in the direction of the first deflection dimension~~[[,]]~~ corresponding to the tilting outwards movement, from a transformer of the steering instrument, and in that the deflection of the second adjusting valve is ~~[[done]]~~ implemented by electric adjusting magnets at control connections of the second adjusting valve, wherein one control connection receives a third electric signal~~[[,]]~~ corresponding to ~~[[the]]~~ a deflection of the steering instrument in the direction of the second deflection dimension~~[[,]]~~ corresponding to the lifting movement, and the other said control connection receives a fourth electric signal, corresponding to the deflection of the steering instrument in the direction of the second deflection dimension,

corresponding to the lowering movement, from ~~[[a]]~~ the transformer of the steering instrument.

29. (Currently Amended) Tilting mechanism according to claim 27, wherein the deflection of the first adjusting valve is ~~[[done]]~~ implemented by adjusting pressures generated by a pilot control device from the deflection of the steering instrument in the first deflection dimension and supplied to control chambers located at the two control connections of the first adjusting valve, and wherein the deflection of the second adjusting valve is ~~[[done]]~~ implemented by adjusting pressures generated by the pilot control device from the deflection of the steering instrument in the second deflection dimension and supplied to control chambers located at the two control connections of the second adjusting valve.

30. (Currently Amended) Tilting mechanism according to claim 29, wherein via a first pair of pressure reducing valves consisting of two pressure reducing valves~~[[, the]]~~ having inputs ~~[[of]]~~ which are respectively connected ~~in each case~~ to a high pressure side connection of a first feed pump, and a hydraulic tank which generates adjusting pressures corresponding to the deflection of the steering instrument in the two directions of the first deflection dimension, wherein the pilot control device generates corresponding adjusting pressures for actuating the first adjusting valve, and via a second pair of pressure reducing valves~~[[,]]~~ consisting of two pressure reducing valves~~[[, the]]~~ having inputs ~~[[of]]~~ which are respectively connected ~~in each case~~ to a high pressure side connection of a first feed pump and a first hydraulic tank which generates adjusting pressures corresponding to the deflection of the

steering instrument in the two directions of the second deflection dimension for the second adjusting valve.

31. (Currently Amended) Tilting mechanism according to claim 27, wherein the first and second adjusting valve ~~[[is in]]~~ are each ~~[[case]]~~ a 4/3 port direction control valve, wherein the first input connection of the first adjusting valve is connected to the high pressure side connection of ~~[[the]]~~ a first feed pump, the first input connection of the second adjusting valve is connected to a high pressure side connection of a second feed pump, the second input connection of the first and second adjusting valves is respectively connected ~~in each case~~ to a hydraulic tank, the first output connection of the first adjusting valve is connected to a first adjusting pressure chamber of a first adjusting device, the first output connection of the second adjusting valve is connected to a first adjusting pressure chamber of a second adjusting device, the second output connection of the first adjusting valve is connected to a second adjusting pressure chamber of a first adjusting device and the second ~~out-put~~ output connection of the second adjusting valve is connected to a second adjusting pressure chamber of a second adjusting device.

32. (Currently Amended) Tilting mechanism according to claim 28, wherein adjustment of the second hydraulic pump in respect of the discharge direction and the discharge volume discharged at the first and second connection is ~~[[done]]~~ implemented by the first adjusting device and adjustment of the first hydraulic pump in respect of the discharge direction and the discharge volume discharged at the first and second connections by the second adjusting device.

33. (Currently Amended) Tilting mechanism according to claim 30, wherein the second hydraulic pump and the first feed pump or selectively the first hydraulic pump and the second feed pump are respectively driven by a common shaft ~~in each case~~ of a common machine or ~~in each case~~ by separate ~~machine~~ machines, ~~in particular by a diesel aggregate.~~

34. (Currently Amended) Tilting mechanism according to claim 30, wherein a low pressure side connection of the first feed pump is connected via a filter to a hydraulic tank, a low pressure side connection of the second feed pump is connected via a filter to a hydraulic tank, the high pressure side connection of the first feed pump is respectively connected via a check valve ~~in each case~~ to a first hydraulic load line that is attached to a first connection of the second hydraulic pump and to a second hydraulic load line that is attached to a second connection of the second hydraulic pump, and the high pressure side connection of the second feed pump via a check valve ~~in each case~~ is respectively connected to a third hydraulic load line that is attached to a first connection of the first hydraulic pump and to a fourth hydraulic load line that is attached to a second connection of the first hydraulic pump.

35. (Currently Amended) Tilting mechanism according to claim 34, wherein a check valve with an opener is provided in each of the first and third hydraulic load lines ~~in each case~~.

36. (Currently Amended) Tilting mechanism according to claim 35, wherein after transformation into a corresponding pressure, ~~[[the]]~~ a second electric adjusting signal actuates an opener of the check valve that is integrated in the first hydraulic load line and,

after transformation into a corresponding pressure, ~~[[the]]~~ a fourth electric adjusting signal actuates an opener of the check valve that is integrated in the third hydraulic load line.

37. (Currently Amended) Tilting mechanism according to claim 34, wherein the second adjusting pressure generated by the pilot control device actuates an opener of the check valve that is integrated in the first hydraulic load line, and the fourth adjusting pressure generated by the pilot control device actuates an opener of the check valve that is integrated in the third hydraulic load line.

38. (Currently Amended) Tilting mechanism according to claim 34, wherein located between the third and fourth hydraulic load lines is a 2/2 port directional control valve which opens in the operating state “floating position” of ~~[[the]]~~ a boom by applying an electric signal to an electric adjusting magnet located at ~~[[the]]~~ a control input of the 2/2 port directional control valve or alternately by applying an adjusting pressure in a control chamber located at the control input of the 2/2 port directional control valve.

39. (Previously Presented) Tilting mechanism according to claim 34, wherein the third hydraulic load line is connected via a hydraulic line to a hydraulic control arrangement to damp pitching oscillations of the working tool while the mobile machine is travelling.

40. (Previously Presented) Tilting mechanism according to claim 39, wherein an electric signal corresponding to the speed of the mobile machine is conducted from a tachogenerator of the mobile machine to the input of the hydraulic control arrangement to damp pitching oscillations of the working tool while the mobile machine is travelling.